

answer to the description of *Puccinia porphyrogenita*, and an *Æcidium* on the leaves of the barberry, *Berberis vulgaris*, will scarcely be any other than *Æcidium Berberidis*.

A fact of still greater moment is, that some of our cultivated plants are attacked by fungoid foes which, minute as they are, materially diminish their vigor, impair their useful products and, in some instances, even destroy their vitality. Raspberries are attacked by the American raspberry rust, *Uredo luminata*; pea vines, by the pea mildew, *Erysiphe Martii*; oats and wheat, by the grain smut, *Ustilago Carbo*; plum and cherry-trees, by the black-knot, *Sphæria morbosa*; and lettuce and onions by their respective molds, *Peronospora gangliiformis* and *Peronospora Schleideniana*. Such fungi must be regarded as injurious to the interests of the husbandman, nor is the pecuniary loss which they occasion trivial or inconsiderable. The loss produced by the potato mold alone, *Peronospora infestans*, abundantly warrants all the effort and study that have been devoted to the investigation of the history of the fungus and to the discovery of some efficient means for preventing its attacks or overcoming their destructive consequences.

On the other hand those fungi that infest noxious weeds and hinder their dissemination and multiplication, must be regarded as the friends and allies of man. Thus the thistle rust, *Trichobasis suaveolens*, an early state of *Puccinia Compositarum*, sometimes attacks the Canada thistle with great virulence, and so impairs its vigor as to prevent the development of the seeds, thereby checking the propagation and spread of this pestilent plant. So, also, the troublesome burgrass, *Cenchrus tribuloides*, is sometimes infested by a smut fungus, *Ustilago Syntherismae*, which not only prevents the development of the seeds of the grass but also of the annoying bur-like involucre. It may yet be found practicable to keep down this grass by the artificial dissemination of the spores of its parasitic fungus in those light sandy soils where the grass usually abounds. It certainly is desirable that the life histories of these fungoid friends and foes should be better understood than they now are, and that the means of multiplying or diminishing their numbers according to their characters should be under the control of the farmer.

NEW SPECIES OF FUNGI, by Chas. H. Peck.—The eight species of fungi here described were collected by Mr. T. S. Brandegee and communicated to me by Mr. E. A. Rau. The quotations are from the notes of Mr. Brandegee.

PUCCINIA GRINDELLE.—Spots pale, orbicular, one to three lines in diameter, sometimes confluent; sori amphigenous, minute, crowded, black or blackish-brown; spores variable, oblong, obtuse or obtusely pointed, strongly constricted at the septum, .0016–.002 of an inch long, .0008–.001 broad; pedicel hyaline, equal to or exceeding the spore in length.

Radical leaves of *Grindelia squarrosa*. Colorado. “Not common.” The variability of the spores is quite noticeable. In some the septum is wanting, in others the pedicel is attached to the side of the basal cell, a peculiarity sometimes seen in the spores of *P. variabilis*.

PUCCINIA CLADOPHILA.—Sori numerous, cauline, orbicular elliptical or oblong, sometimes confluent, surrounded by the ruptured epidermis, blackish-brown; spores subelliptical, scarcely constricted, obtuse, .0012–.0015 of an inch long, .0008–.0009 broad; pedicel very short.

Stems of *Stephanomeria minor*. Colorado. “On but one individual, although the plants are common.” The branches sent were abundantly infested with the fungus. No leaves accompanied the specimens, so that I am unable to say whether they are ever attacked or not.

UROMYCES PLUMBARIUS.—Sori amphigenous, scattered or subconfluent, at first covered by the epidermis and of a peculiar shining leaden hue, at length exposed and of a dark ferruginous-brown or blackish-brown color; spores obovate or subelliptical, obtuse or rarely very bluntly pointed, .0009–.0012 of an inch long, about .0008 of an inch broad; pedicel very short or obsolete.

Leaves of *Eriogonum cæspitosum*. Colorado. “Not common.” The beautiful metallic hue of the covering epidermis is suggestive of the specific name.

UROMYCES BRANDEGEL.—Spots none; sori scattered, rarely slightly confluent, prominent, orbicular elliptical or oblong, black; spores subglobose or broadly elliptical, rough with minute warts or papillæ, .0012–.0016 of an inch long, .0011–.0015 broad; pedicel hyaline, usually equal to or exceeding the spore in length.

Leaves of *Bouteloua curtipendula*. Colorado. “Common.” This is a fine species, very distinct from *U. Graminum*. It is with pleasure that I dedicate it to its discoverer.

UROMYCES SIMULANS.—Sori epiphyllous, varying from subrotund to linear, often crowded and subconfluent, ferruginous-brown; spores variable, subglobose, obovate or elliptical, rather large, minutely rough, .0013–.0016 of an inch long, .001–.0011 broad; pedicel about equal to or shorter than the spore in length, easily separating from it.

Sheaths and upper surface of leaves of *Vilfa*. Colorado. In the character of the sori this species resembles *Puccinia Graminis*, from which, however, it differs in its paler ferruginous-brown color. The mature spores easily separate from the pedicels, in which respect the fungus simulates species of *Trichobasis*.

URONYCES SANGUINEUS.—Spots small, scattered, sometimes confluent, bright-red or purplish-red; sori scattered, one on each spot, prominent, cinnamon-brown, often partly concealed by a single large fragment of the ruptured epidermis; spores obovate or oblong-pyriform, .001–.0016 of an inch long, .00065–.0008 broad, generally uninucleate, easily separating from the pedicel; pedicel hyaline, equal to or less than the spore in length.

Leaves of *Berberis Aquifolium*. Colorado. The deciduous pedicels connect this species with the genus *Trichobasis*, but I find an occasional one that is persistent, which, with the *Uromyces*-like appearance of the spores, induces me to refer the species to the genus *Uromyces*.

CRONARTIUM COMANDRÆ.—Peridium elongated, subcylindrical, more or less curved, slightly swollen at the base, yellowish or bright orange; spores subglobose, .0003–.0004 of an inch in diameter.

Stems of *Comandra pallida*. Colorado. A paler form of what appears to be the same species occurs on the leaves of *Comandra umbellata*, but I have not seen it fertile. The fungus surrounds the stems on all sides with its bright-colored bristling peridia.

ÆCIDIUM GRACILENS.—Spots thickened, green or slightly discolored; peridia hypophyllous, elongated, slender, pink or rosy-red, white when evacuated; spores globose, bright-orange, .0009–.001 of an inch in diameter, with a thick hyaline epispore.

Leaves of *Philadelphus microphyllus*. Colorado. "Not common." The pinkish hue of the peridia when filled with spores is very beautiful.

SOME MISSOURI FERNS.—I have found *Asplenium parvulum* growing abundantly along the cliffs of the James River in this county (Greene), also *Adiantum Capillus-Veneris* in the same locality.—E. M. SHEPARD, Springfield, Mo